

## Mumps Fact Sheet For Clinicians (21 April 2006)

### Michigan Department of Community Health (MDCH), Division of Immunization

**Etiology and Clinical Manifestations:** Mumps is caused by an RNA virus classified as a Rubulavirus in the Paramyxoviridae family. Mumps is a systemic disease characterized by swelling of one or more of the salivary glands, usually the parotid glands. Approximately one third of infections do not cause clinically apparent salivary gland swelling. Symptoms usually resolve after about 10 days. More than 50% of people with mumps have cerebrospinal fluid pleocytosis, but fewer than 10% have symptoms of central nervous system infection. Orchitis is a common complication after puberty, but sterility rarely occurs. Other rare complications include arthritis, thyroiditis, mastitis, glomerulonephritis, myocarditis, endocardial fibroelastosis, thrombocytopenia, cerebellar ataxia, transverse myelitis, ascending polyradiculitis, pancreatitis, oophoritis, and hearing impairment. Death is rare, but severe disease or complications are more common in adults than children.

Other causes of parotitis include infection with cytomegalovirus, parainfluenza virus types 1 and 3, influenza A virus, coxsackieviruses, lymphocytic choriomeningitis virus, enteroviruses, human immunodeficiency virus (HIV), *Staphylococcus aureus*, and nontuberculous mycobacterium; starch ingestion; drug reactions (e.g., phenylbutazone, thiouracil, iodides); and metabolic disorders (diabetes mellitus, cirrhosis, and malnutrition).

**Transmission:** Transmission of mumps virus occurs by direct contact with respiratory droplets, saliva or contact with contaminated fomites.

**Incubation Period:** The incubation period usually is 16 to 18 days, but cases may occur from 12 to 25 days after exposure

**Communicable Period:** Mumps virus has been isolated from saliva from between two and seven days before symptom onset until nine days after onset of symptoms.

**Clinical Diagnosis:** Persons who present with an illness with acute onset of unilateral or bilateral tender, self-limited swelling of the parotid or other salivary gland, lasting >2 days, and without other apparent cause have met the clinical case definition for mumps and should undergo diagnostic testing to confirm mumps virus as the cause, because mumps is now an uncommon infection and parotitis has other etiologies, including other infectious agents.

**Laboratory Diagnosis:** Laboratory criteria for diagnosis include the following:

- ☐ Positive serologic test for mumps immunoglobulin M (IgM) antibody, OR
- ☐ Significant rise between acute- and convalescent-phase titers in serum mumps immunoglobulin G (IgG) antibody level by any standard serologic assay, OR
- ☐ Isolation of mumps virus from clinical specimen, OR
- ☐ Detection of virus by reverse transcription polymerase chain reaction (RT-PCR)

MDCH highly recommends both the collection of serum samples and a mumps viral specimen (oral fluid or urine) on each person with suspected mumps as close to symptom onset as possible. For the mumps viral specimen, a buccal swab is preferred.

#### Collection and Management of Samples:

- ☐ For serology, collect 7-10 mL of blood in a red top or serum separator tube (SST). Store and ship specimens cold (using ice packs). The acute serum should be collected within 5 days after symptom onset. Convalescent serum should be collected within 2 – 5 weeks after symptom onset, and at least 2 weeks after the acute serum. Serology may be conducted at a commercial laboratory or your local health department can facilitate the transport of specimens to the MDCH laboratory.

- ❑ For viral samples, collect buccal or throat swab samples up to 9 days after symptom onset. Parotid gland / buccal swabs may provide the best viral sample. Massage the parotid gland area (just below the ear) for about 30 seconds prior to the collection of buccal secretions. Keep samples cold (4C) or frozen (-70C). Bulk urine should be kept cold (4C).

**Infection Control Measures:** Basic infection control measures apply. These include:

- ❑ Plan to separate coughing or ill patients in the waiting area or have a separate area designated. Have a procedure or surgical masks for coughing patients readily available.
- ❑ Have disposable tissues readily available.
- ❑ Wear appropriate personal protective equipment (PPE) while performing exams, i.e. masks with a coughing patient (droplet spread).
- ❑ This is the ideal time to determine immune status of personnel, either documentation of two MMRs or a positive mumps IgG. If vaccination status is not adequate, vaccinate with MMR unless contraindicated. Don't forget it is also important to know the immune status of measles and other vaccine preventable diseases.
- ❑ Screen individuals for mumps symptoms when calling-in for an appointment. If clinically compatible with mumps, do not allow them to sit in the waiting area for prolonged periods of time and keep them at least three feet from other patients. Request that they wear a procedure or surgical mask. When assessing a patient for possible mumps, staff should follow Standard and Droplet Precautions.
- ❑ Any staff member with signs and symptoms of mumps should be sent home and be off for five days or until well, whichever is longer.

#### **How to arrange for mumps testing by the MDCH Bureau of Laboratories**

- ❑ Do not send specimens for testing at MDCH until you have discussed the case with your local health department. Someone from the state health department (MDCH) may also contact you to facilitate delivery of the specimens.
- ❑ After you have approval to send your specimens, send them to the following address (do not send them directly to CDC):

Michigan Department of Community Health  
Bureau of Laboratories  
3350 North Martin Luther King Jr. Blvd.  
Building 44 Room 155  
P.O. Box 30035  
Lansing, Michigan 48909.

- ❑ MDCH can perform mumps viral culture on buccal or throat swabs, and can perform mumps IgG testing on paired serum specimens. RT-PCR testing for mumps will be available soon.
- ❑ If you want mumps IgM testing, be aware that MDCH lacks facilities to do this, and will send the serum specimen to CDC for testing. Turnaround may be faster through a private lab.